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# SPECIFICATION

FOR

## POWER HOUSE

FOR THE

UNITED STATES DEPARTMENT OF AGRICULTURE,  
WASHINGTON, D. C.

JAMES WILSON, Secretary of Agriculture.

---

### BUILDING COMMITTEE.

B. T. GALLOWAY, Chairman.

A. C. TRUE.

GIFFORD PINCHOT.

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JOHN STEPHEN SEWELL, Supervising Engineer.

R. BARNARD TALCOTT,

S. FRANKLIN GARDNER,  
Mechanical Engineers.



WASHINGTON:  
GOVERNMENT PRINTING OFFICE.  
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## ADVERTISEMENT.

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OFFICE OF THE BUILDING COMMITTEE,  
U. S. DEPARTMENT OF AGRICULTURE,  
*Washington, D. C., January 31, 1907.*

Sealed proposals will be received at this office until 2 o'clock p. m. on the 12th day of March, 1907, and then opened, for the construction of the Power House for the United States Department of Agriculture, Washington, D. C., in accordance with the drawings and specifications, copies of which may be obtained at the Office of the Building Committee, United States Department of Agriculture.

All applications must be accompanied by a certified check for \$25, made payable to the Disbursing Clerk of the Department of Agriculture, which checks will be retained until the return of the drawings and specifications.

B. T. GALLOWAY,  
*Chairman.*

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## SPECIFICATION

FOR

### POWER HOUSE FOR THE UNITED STATES DEPARTMENT OF AGRICULTURE, WASHINGTON, D. C.

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#### GENERAL CONDITIONS.

##### *Form of Proposal and Signature.*

1. The proposal must be made on the blank form hereto attached, plainly marked "Proposal for Power House," on the envelope or cover, and addressed to the Chairman of the Building Committee, United States Department of Agriculture, Washington, D. C., stating in writing and figures (without interlineation, alteration, or erasure) the sum of money for which the bidder proposes to supply the materials and perform the work required by the drawings and specification, the separate prices called for in proposal sheet, and also prices of certain parts of the work. The proposal must be signed with the full name and address of the bidder; if a copartnership, the copartnership name by a member of the firm, with names and addresses in full of each member; and if a corporation, by an officer in the corporate name, with the corporate seal attached to signature. No telegraphic proposals or telegraphic modifications of proposals will be considered. Proposals received after the time advertised for the opening will be returned unopened. If a proposal is sent by registered mail, allowance should be made for the additional time required for such transmission.

##### *Certified Check.*

2. Each bidder must submit with his proposal a certified check, in amount \$500, drawn to the order of the Disbursing Clerk of the Department of Agriculture, and the proceeds of the said check shall become the property of the United States if for any reason whatever the bidder, after the opening of the bids, withdraws from the competition or refuses to execute the contract and bond required, in the event of such contract being awarded to him. Checks submitted by the unsuccessful bidders will be returned after the approval of the contract and bond executed by the successful bidder.

*Eight-hour Law.*

3. The attention of bidders is called to the Act of Congress, approved August 1, 1892, limiting the hours of daily service of laborers and mechanics employed upon public works of the United States to eight hours in any one calendar day.

*Convict Labor.*

4. In compliance with Executive order dated May 18, 1905, convict labor must not be employed in connection with this contract.

*Subcontractors.*

5. No subcontractor or other person furnishing material or labor will be recognized, nor will the United States be responsible in any way for the claims of such persons beyond taking a bond, with good and sufficient sureties, with the additional obligation that the general contractor shall make prompt payment to all persons furnishing him labor or materials used in the prosecution of the work. Persons so furnishing materials or labor to have a right of action on said bond, in the name of the United States for their use.

*Designation of Parties.*

6. The contracting officer, on the part of the United States, is the Secretary of Agriculture, the officer appointed by him to act as contracting officer is designated in these specifications as "Supervising Engineer." The present incumbent of this office is Capt. John Stephen Sewell, Corps of Engineers, U. S. Army.

7. The engineers appointed by the Secretary of Agriculture for the designing and superintending of the mechanical plant of the buildings are R. Barnard Talcott, consulting mechanical engineer, and S. Franklin Gardner, mechanical engineer and superintendent.

8. All matters pertaining to the fulfillment of the contract are to be handled by the mechanical engineer and superintendent, acting in consultation with the consulting mechanical engineer. All matters, however, involving modifications in contract and payments thereon must be approved by the supervising engineer.

9. Wherever the word "bidder" is used herein it shall be held to mean any individual or firm of individuals, or any member of any firm or any corporation signing a bid submitted.

10. Whenever the word "contractor" is used herein it shall be held to mean any individual or firm of individuals, or any corporation, who may contract with the United States to do the work or furnish materials under this specification.

*Routine of Business.*

11. After the award and signing of the contract, all business relating to the work shall be transacted through the office of the

mechanical engineer and superintendent, except as otherwise herein provided.

*Rights Reserved.*

12. The materials proposed to be used and the competency and responsibility of bidders will receive consideration before award of contract.

13. The Department reserves the right to accept any part or parts of the proposal made at the prices included in same; also to waive any informalities in and to reject any and all proposals.

*Form of Contract.*

14. The contract which the bidder agrees to enter into shall be in form based upon the terms of this specification.

*Bond.*

15. The successful bidder must furnish a bond in a sum equal to 50 per cent of the amount of the contract, with sureties satisfactory to the Department, guaranteeing the fulfillment of all provisions of the contract, the satisfactory completion of the work included therein within the stipulated time, the prompt payment of all persons furnishing materials or labor required in the execution of the work, and covering all guarantees herein provided for.

16. No payment will be made on this contract until the bond has been submitted to the Department and approved by the Secretary of Agriculture.

17. The contractor must obtain, at his expense, all necessary policies of insurance on work and materials supplied by him, as the same will be at his risk until final completion, inspection, and acceptance; but the contractor will be relieved of any risk for such portions of the building as may be occupied by the United States before the entire completion of his contract.

*Modifications.*

18. The Department reserves the right to make any additions to, omissions from, or changes in the work or materials called for by the drawings and specifications, without notice to the surety or sureties on the bond given to secure satisfactory compliance with the terms of the contract; and the United States further reserves the right to demand additional security when additions are made, if in the judgment of the supervising engineer such security is required. For such additions, omissions, or changes, the contractor must submit a reasonable proposal. If the proposals submitted are deemed unreasonable by the supervising engineer, he shall, acting for the United States, have the right to fix the value of such additions, omissions, or

changes, and no claim for damages on account of such changes or for anticipated profits shall be allowed.

*Delays.*

19. Each bidder must submit his proposal with the distinct understanding that, in case of its acceptance, time for the completion of the work shall be considered as the essence of the contract, and that for the cost of all extra inspection, salaries, and other expenses entailed upon the United States by delay in completing the contract, the United States shall be entitled to a fixed sum of \$25 as liquidated damages, computed, estimated, and agreed upon, for each and every day's delay not caused by the United States.

20. *Provided*, That the collection of said sum may, in the discretion of the Secretary of Agriculture, be waived in whole or in part, and that the contractor shall be entitled to one day, in addition to said stipulated time, for each day's delay that may be caused by the United States or may be due to causes which could not have been foreseen or prevented by the contractor.

21. The supervising engineer, acting for the United States, reserves the right to suspend any portion of the work embraced in the contract whenever, in his opinion, it would be inexpedient to carry on said work.

*Notice to Sureties.*

22. The final inspection and acceptance of the work shown by the drawings and specifications, forming a part of the contract, shall not be binding or conclusive upon the United States if it shall subsequently appear that the contractor has willfully or fraudulently, or through collusion with a representative or official of the United States on the work, supplied inferior materials or workmanship, or has departed from the terms of his contract. In any such case the United States shall have the right, notwithstanding such final acceptance and payment, to cause the work to be properly performed and satisfactory material supplied to such extent as in the opinion of the mechanical engineer may be necessary to finish the work in accordance with the drawings and specifications therefor at the cost and expense of the contractor and the sureties on his bond, and shall have the right to recover against the contractor and his sureties the cost of such work, together with such other damages as the United States may suffer because of the default of the contractor in the premises, the same as though such acceptance and final payment had not been made.

*Payments.*

23. Payments of 90 per cent of the value of the work executed and satisfactorily in place, based upon the estimated value thereof



as ascertained by the supervising engineer, will be made every thirty or sixty days, or as may be provided in the contract, and the payment of the 10 per cent retained will be made after the final approval and acceptance by the supervising engineer of all work and materials embraced in the contract.

24. The supervising engineer, however, shall have the right to suspend payments at any time if in his judgment the contractor is not using due diligence to procure and submit for approval satisfactory samples as required by the contract, and is not prosecuting his work as promptly as conditions demand.

25. To aid the supervising engineer in ascertaining the value of work done and in place, the contractor shall furnish to the said official, before any payment shall be due, a schedule of prices upon which the contract is based.

#### *Supervision.*

26. Every part of the work is to be executed under the direction and to the entire satisfaction of the mechanical engineers, and subject to the final approval and acceptance of the supervising engineer.

#### *Measurements.*

27. Bidders should visit the building site in order to get a satisfactory comprehension of the work required and make such measurements as they may desire.

#### *Time to Complete.*

28. The work under this contract must be begun as soon, and prosecuted as fast, as conditions will permit, under the direction of the mechanical engineer, and at such times as will avoid interference with other contracts, and must be completed not later than September 15, 1907.

#### *Patents.*

29. The Department will not recognize any demand brought on account of infringement of patents; but will hold the contractor and his bondsmen strictly responsible for any delay or cost resulting from his failure to fully protect the United States against patent rights.

#### *Tools and Appliances.*

30. All tools and appliances required for the proper execution of the work must be provided by the contractor and be maintained, used, stored, and moved at his expense and risk.

#### *Cutting, Restoration, and Removal of Débris.*

31. Contractor shall at his expense do all necessary cutting, drilling, etc., repair in the best possible manner, under the direction

of the mechanical engineer, any damage to his own or others' work and materials incident to his contract, and remove from the premises all débris resulting from the execution of his contract.

*Inspection and Acceptance of Work.*

32. Any materials delivered or work performed by the contractor, at any and all times during the progress of the work and prior to its final acceptance and the payments therefor, shall be subject to the inspection of the mechanical engineer, who shall reject any part that in his opinion is not strictly in accordance with the contract.

*Personal Interview.*

33. The right is reserved to require the contractor or his authorized representative to visit the Department, without expense to the United States, if at any time it is considered that, in the interest of the United States, a conference is necessary for the prompt adjustment of any complicated or unsatisfactory conditions that have developed in connection with this contract. Any understanding arrived at as a result of such conference shall not be binding until formally approved.

*Interpretation of the Specification.*

34. In all questions relating to the interpretation of this specification or any part thereof, the decision of the mechanical engineer, concurred in by the supervising engineer, shall be final.

*Foreman, etc.*

35. The work shall at all times be conducted in charge of a competent superintendent or foreman, who shall represent the contractor and have general authority to act for him, and the contractor shall discharge and not employ upon this work any foreman or any and all workmen whom the mechanical engineer may deem incompetent or careless. The contractor shall also give his personal attention to the work.

*Materials and Workmanship.*

36. All materials and appliances used under this contract, unless specifically described, shall be of best grade of standard manufacture, and all workmanship shall be strictly first-class.

37. The contractor, immediately after the award of the contract, must submit for approval a list of materials and appliances which he proposes to use; giving the name and address of manufacturers and catalogue number of special appliances.

38. Should contractor fail to submit such a list of materials and appliances, or in the event the materials and appliances proposed to be used in any case are considered unsatisfactory, the Department



reserves the right to name articles and materials which will conform to the specification, and the selection by the Department shall be final and binding upon the contractor.

*Samples.*

39. The Department reserves the right to require the contractor to submit samples of any or all articles or materials to be used under this contract, which samples, if approved, may be used on the work after serving their purpose as samples.

40. Samples, if requested, must be received in ample time for their proper consideration and approval, and for the execution of the work thereafter within the contract time for completion.

41. In the event the contractor delays the submission of samples when called for, so that there does not appear to remain sufficient time for the execution of the work, the Department reserves the right to abrogate the contract or to purchase materials and have the work performed at the expense of the contractor.

*Approval of Appliances.*

42. The approval of any appliances or materials named or submitted by contractor is to be understood as subject to the specification requirements, and not as an absolute acceptance.

*Surveying.*

43. Accurate surveying instruments must be used by contractor in laying out the work and he will be held responsible for the correctness of the work, and the instruments must be at the disposal of the mechanical engineer whenever he desires to check up any part of the work.

*Cooperation.*

44. All contractors who shall do work under this specification are to cooperate with one another to the end that the whole work may progress to the best advantage, and arrangements must be made with the contractor of the new buildings now under contract to avoid interference in any way with the execution of this contract.

*Piling of Building Materials.*

45. The contractor shall pile or arrange in a neat and orderly manner all building materials when delivered at the building in such a way as to give convenient access to the same in order of requirement, and for the purpose of inspection, and without occupying unnecessary space. He shall not interfere with the supplying, hauling, handling, and stacking of materials in like manner by other contractors, and in case of dispute the directions of the supervising engineer shall be followed.

*Risks, Blame, etc.*

46. The contractor is to assume all risks and bear any loss occasioned by neglect or accident during the progress of the work, until the same shall have been completed and accepted.

47. He must properly protect any pavements during the progress of the work and make good any injury that may have occurred to any adjacent building, sidewalks, etc., in consequence of the erection of this work.

48. He is to be responsible for all damage to persons or property which may occur in connection with the work; comply with all laws, District building regulations or ordinances, as far as the same are binding upon the United States. and obtain at his own expense all required licenses and permits.

## GENERAL DESCRIPTION.

### *Scope of Work.*

49. This specification, with accompanying drawings, is to cover the construction complete in every detail of the power house, including smokestack, tunnels between power house and the two laboratory buildings, and all plumbing.

### *Drawings.*

50. The drawings, Nos. P. H. 361 to P. H. 370, inclusive, indicate the work to be executed under this contract, and proposals must be based on these drawings.

51. Detailed drawings of any parts not fully covered by the above drawings will be furnished to contractor upon request.

### *Explanation of Drawings and Specification.*

52. The drawings are to be taken together with the specification and not separately, and should there exist any discrepancies between them, the contractor shall apply to the mechanical engineer for further and particular instructions for each case, and failing to do so shall make the work right at his own expense, to the satisfaction of the mechanical engineer.



## EXCAVATING.

### *General Requirement.*

53. This contractor is to do all necessary excavating and back-filling as required by the drawings to construct the building and tunnels at the given grades. All excess earth is to be removed from the premises.

### *Back-filling.*

54. After the foundations, tunnels, etc., have been constructed, and all piping to be placed below grade has been installed and approved, all back-filling must be done with clean earth, well rammed in layers to the required grades.

### *Shoring.*

55. Contractor must do all necessary shoring for all excavations and will be held responsible for all damage caused by improper shoring. The shoring will be subject to the approval of the mechanical engineer, but because shoring is not condemned by the mechanical engineer this fact will in no way relieve the contractor of responsibility for such work.



## CONCRETE AND CEMENT WORK.

### *Footings.*

56. All footings for exterior and cross walls of power house and for stack and the base of the manhole are to be of concrete. The footings must be constructed of dimensions and having the number of courses in each case as shown by the drawings.

### *Tunnels.*

57. The tunnels connecting the power house with the two buildings, shown in plan by drawing No. P. H. 361 and by details on drawing No. P. H. 370, are to be constructed of concrete, having solid concrete side walls and base and reinforced-concrete roof slabs.

58. The roof slab is to be reinforced with expanded metal, having not less than 0.28 square inch of steel per linear foot of slab with 5-foot span, and not less than 0.7 square inch of steel per linear foot of slab with 10-foot span, the metal in each case being placed 1 inch from the bottom of the slab.

### *Roof of Coal Vault.*

59. The concrete slab over the coal vault is to be 6 inches thick, resting on I beams as indicated, the slab being reinforced with not less than 0.5 square inch of steel reinforcements per linear foot placed 1 inch from the bottom of the slab, the top of slab having granolithic finish divided into 6-inch squares and provided with 6-inch borders. Special reinforcing must be provided at all coal holes.

### *Floor Construction above Pump and Heater Room.*

60. The floor construction above pump and heater room is to be of reinforced-concrete construction consisting of reinforced-concrete beams and hollow tiles.

61. This reinforced floor construction must be not less than 12 inches thick, designed for a load of 200 pounds per square foot, the top of concrete beams and tiles being 3 inches below the finished floor line.

62. The space above the reinforced floor construction is to be filled with cinder concrete, 2 inches thick, having a 1-inch-thick cement finish or wood floor as indicated on plans.

63. The opening at location of spiral staircase to be framed with reinforced-concrete beams as may be approved, and concrete lintels are to be provided at the openings in the south wall of pump and heater room.

*Cement Floors.*

64. All floors of power house are to be of cement, except where noted on plans that wood floors are to be provided. Cement floors are to consist of a base of concrete 4 inches thick, having 1-inch-thick finishing coat divided into squares as directed.

*Sidewalk and Driveways.*

65. The sidewalk and driveways at coal vault are to be constructed with concrete base 5 inches thick and having a 1-inch-thick granolithic finish, divided into 3-foot blocks for sidewalk and 6-inch blocks for driveways. The driveways are to be provided with 6-inch border strips and graded as indicated.

*Cement.*

66. All cement used must be best quality Portland cement. Tests may be made of the tensile strength, time for setting, specific gravity, and fineness, and no cement can be used until approved.

67. Cement must be delivered on the ground in its original packages with the maker's name and brand marked thereon. The cement must be stored by the contractor in a suitable shed and kept dry.

*Sand.*

68. Sand for concrete must be clean, sharp sand, free from pebbles, loam, or clay.

*Stone for Concrete.*

69. Concrete may contain either broken stone or gravel. Broken stone must be of clean, hard rock of size to pass through a 2-inch ring. Gravel must be clean and not larger than 2 inches in diameter.

*Concrete.*

70. All concrete, except for reenforced-concrete construction, to consist of 1 part cement, 3 parts sand, and 6 parts broken stone or gravel.

71. Concrete for reenforced-concrete construction to consist of 1 part cement,  $2\frac{1}{2}$  parts sand, and 5 parts gravel or small broken stone, all to pass through a 1-inch ring. Cinder concrete for fill of floor over pump and heater room to consist of 1 part cement to 7 parts clean cinders, containing no dirt, clinkers, etc. Small-size pieces of broken brick may be used if desired in place of cinders.

72. All concrete to be proportioned by actual measuring, and concrete must be thoroughly mixed in an approved manner.

*Cement and Granolithic Finish.*

73. The finish of cement floors and granolithic surfaces of sidewalk and drives to be composed of 1 part cement to 2 parts sand.



The top to be dusted with cement, colored with lampblack where directed, and troweled to a hard surface, the top of the granolithic sidewalk to be pitted, as required.

*Placing of Concrete.*

74. All concrete work to be provided with heavy plank centering, which must be removed before back-filling.

75. All concrete must be thoroughly tamped in layers of not over 12 inches and all concrete work must be made as monolithic as possible.

76. Granolithic and cement floor finish to be placed before concrete has set.

*Reinforced Concrete.*

77. Reinforced-concrete construction herein required must be installed in compliance with designs, approved for each particular case.

78. All reinforcing bars must be of best grade medium steel suitable for the class of work. The bars for floor over pump and heater room and for roof of coal vault to have suitable shear members securely attached to main bars. Floor tiles must be of best quality hard-burned heavy-pattern tiles of dimensions and design as may be approved.

79. Complete detailed drawings for each case, including details of reinforcing members, must be submitted in duplicate and approved before this work is started.



## BRICKWORK.

### *Brick.*

80. All exterior and cross walls of power house, walls of coal vault and at ends of tunnels at buildings, and walls of manhole and stack to be built of straight, sound, hard-burned bricks, firm in texture, even in size, and free from limestone pebbles. No bats are to be used.

### *Bricklaying.*

81. All walls to be of uniform thickness of dimensions given on plan in each case, laid up with headers every fifth course.

82. Bricks to be shoved well into a full bed of mortar, having close joints entirely filled.

83. All joints of brickwork to be struck, except where walls are to be plastered or covered by back-filling, in which cases the mortar is to be cut off, flush with brickwork.

84. All brick must be thoroughly wetted immediately before being laid.

85. Arches the full thickness of the walls shall be provided at all openings where indicated, built on strong wood centers and properly keyed. The centers are not to be struck until the mortar has thoroughly set.

86. Arches are to be constructed in the north and west walls where indicated, to provide for future openings.

87. This contractor must brick in all pipe sleeves for piping, conduits, etc., the sleeves being furnished by the power plant equipment contractor.

### *Mortar.*

88. All brickwork to be laid in cement mortar, composed of 1 part cement and 3 parts sand by actual measurement, thoroughly mixed in an approved manner. Cement and sand of mortar to be as specified under concrete and cement work.

89. To each batch of mortar may be added not more than 10 per cent of approved lime paste, thoroughly mixed with the other ingredients. Lime must be thoroughly slaked for at least a week before using.



## STONework.

### *Sills, etc.*

90. All windows and doorsills, platforms at doors, coping at top of end walls and for walls of smokestack, to be of selected hard quality bluestone, free from imperfections, having smooth even surfaces, true to dimensions, with square edges, and set in cement mortar as specified for brickwork.

91. All window sills to be cut with a wash and drip and doorsills to be cut with a wash only.

### *Curbstones.*

92. The curbs in place at end of driveways are to be lowered, having top set flush with the street gutter. The curb between the two driveways is to have the top surface redressed where same is not true to shape and reset with top flush with grade required for sidewalk.

93. New corner curbs, cut with an inside radius of approximately 18 inches, are to be furnished for the four street corners of the driveways. These pieces of curb are to match, in material and finish, curbs in place.

94. Necessary cutting of stone in place, to fit in the new corners in an approved manner, must be done by this contractor.

95. Curbs are to be firmly bedded in place on a bed of sand and all damage to street caused by resetting curbs must be repaired in an approved manner.



## STEEL AND IRON WORK.

### *Quality of Steel.*

96. All steel must be of best quality open hearth, having a tensile strength of from 55,000 to 65,000 pounds per square inch.

97. Rivets to be of best quality rivet steel, having a tensile strength of from 50,000 to 60,000 pounds per square inch.

### *Cast iron.*

98. All castings must be of best quality tough gray iron, sound, clear, and free from all defects.

### *Smokestack.*

99. A self-supporting steel stack 60 inches diameter by 48 feet high, above the brickwork, constructed of  $\frac{1}{4}$ -inch-thick material, is to be provided by this contractor, constructed as shown by details on drawing No. P. H. 369.

100. Stack to be made up in sections of heights indicated, having a bar-iron collar  $\frac{3}{8}$  by 3 inches at top and a flaring base supported on a cast-iron base plate.

101. The base plate must comply with the details given on drawings, being constructed in six segments, firmly bolted together, the bottom section of stack being riveted to base. The base is to be anchored to brickwork by six  $1\frac{1}{2}$ -inch-diameter bolts, 8 feet 6 inches long, provided with plates as indicated.

102. All joints of stack to be single-riveted lap joints made with  $\frac{3}{8}$ -inch-diameter rivets, spaced 2 inches on centers.

103. Stack to be provided, as indicated, with a ladder constructed in an approved manner. Ladder to be 12 inches wide, having  $\frac{3}{4}$ -inch-diameter rounds,  $2\frac{1}{2}$  by  $\frac{1}{2}$  inch side bars, and supported from stack by bar-iron straps riveted to stack as shown.

### *Roof Truss.*

104. Five angle and channel iron trusses, located as shown by drawing No. P. H. 367 and constructed as indicated on drawing No. P. H. 369, are to be provided for supporting the roof.

105. All members of trusses to consist of two angles or channels of sizes given, riveted together at joints through  $\frac{3}{8}$ -inch-thick gusset plates with  $\frac{3}{4}$ -inch-diameter rivets, placed 3 inches on centers.

106. The trusses are to rest on 12 by 12 inch cast-iron plates 1 inch thick. One end of each truss is to be firmly anchored in place by two 1-inch bolts, 18 inches long, with plates, the other ends being left free for expansion.

107. Angles are to be provided at joints of upper members of trusses for supporting the roof purlins, as indicated.

*Stairway to Boiler Room.*

108. At the entrance to boiler room a metal platform with iron stairs to boiler-room floor are to be installed by this contractor, in accordance with details on drawing No. P. H. 367.

109. The platform, consisting of  $\frac{1}{2}$ -inch cast-iron plates in sections of approved size, is to be supported on channels as indicated, one end of the channels being built into the brick wall and the other end supported on an I beam extending through coal-vault wall, as shown.

110. The stairs are to consist of channels for sides having cast-iron treads bolted to channels. The channels are to be securely fastened in place by angles bolted to channels, and secured at top to the channel-iron support of platform with machine screws and at bottom secured to floor with heavy expansion bolts.

111. Around the outer edges of the platform and along one side of steps, a pipe railing is to be provided, being securely fastened in place with bolts or machine screws and having special, malleable pattern, railing fittings. One section of the railing is to be arranged, as indicated, to swing out of place, provided with suitable connection at swinging point and a stop to support bar when in place.

112. A hoisting bar,  $1\frac{1}{4}$  inches diameter, having shaped end for receiving hoisting block and upset to form collar near other end, is to be furnished and supported in place as indicated, the bar extending through the platform supporting channel, the lower end being braced by a bar-iron strap riveted or bolted to the channel.

*Spiral Staircase, etc.*

113. Where indicated in the northwest corner of the engine room, a spiral staircase is to be provided. This stairway is to be approximately 5 feet 6 inches outside diameter and to extend from engine-room floor line to floor of boiler room, the bottom few steps being straight as indicated.

114. From the boiler-room landing, iron steps are to be installed extending to the floor of pump and heater room as shown.

115. The spiral staircase and the steps to pump and heater room are to be of first-class construction in every detail, of heavy material and rigidly framed and secured in place. No risers will be required.

116. At the engine-room floor line a heavy cast-iron plate is to be properly supported and secured in place to form a landing.

117. One-inch pipe railing, fitted with special, malleable-iron pattern, rail fittings, or other railing as may be approved, is to be provided at stairway opening in engine room, on both sides of the stairs, and along the top of the wall between boiler room and pump



and heater room. This railing must be of suitable height and securely fastened in place.

*Steel Beams.*

118. For the support of the coal-vault roof, 10-inch 30-pound steel beams are to be installed, as indicated on the drawings, being supported on the brick walls and set to give the required pitch to sidewalk. One of these beams is to be of sufficient length to extend into boiler room to support the end of the platform at entrance, as indicated.

119. At the opening from pump and heater room to tunnel, two 6-inch 12.25-pound **I** beams are to be installed, the brickwork above beams resting on a  $\frac{3}{8}$ -inch-thick by 18-inch-wide wrought-iron plate as shown by detail.

120. The wall of the boiler room at end of the pump and heater room is to be supported on two 6-inch 12.25-pound **I** beams with top plate  $\frac{1}{2}$  inch thick by  $13\frac{1}{2}$  inches wide.

*Metal Door.*

121. A metal door, 2 feet 6 inches wide by 6 feet high, is to be provided at bottom of smokestack wall, where indicated.

122. Door to be of  $\frac{3}{16}$ -inch-thick boiler iron, having  $\frac{3}{16}$  by 3 inch bar-iron reenforcing strips around edges, secured with machine screws.

123. A frame of 2-inch angle irons is to be provided and securely fastened in opening with heavy expansion bolts, a felt gasket being provided between frame and walls or floor, and the frame being faced with felt properly fastened in place so that door will fit air-tight.

124. The door is to be provided with three suitable heavy-pattern hinges, and with two approved catches, arranged to force the door tightly closed when fastened. The opening above door formed by the arch is to be closed in an approved and air-tight manner.

*Coal-hole Frames and Covers.*

125. Seven cast-iron coal-hole frames and covers are to be provided in roof over coal vault, located as indicated on the plans. The frames and covers are to be constructed as shown by details on drawing No. P. II. 370, the frames being 28 inches outside diameter, 6 inches deep, and having a 21-inch-diameter opening. Covers are to be recessed as indicated, properly fitting frames and provided with lifting hole, as shown.

*Manhole Frame and Cover, etc.*

126. A standard approved cast-iron cover with frame is to be provided for the manhole at northeast corner of the building, the cover

being set flush with finished grade. The detail of manhole, with frame, cover, etc., as shown on drawing No. P. H. 370. The frame is to be approximately  $24\frac{1}{4}$  inches diameter on top by  $10\frac{3}{8}$  inches deep, constructed of  $\frac{3}{8}$ -inch-thick metal and provided with the necessary stiffening ribs.

127. The cover is to be recessed, constructed of 1-inch-thick iron, to be 4 inches deep and provided with stiffening webs.

128. Rungs of  $\frac{5}{8}$  by  $\frac{5}{8}$  inch iron are to be provided in manhole every six courses.

#### *Ladders.*

129. At the two points of change in elevation in the tunnels iron ladders are to be provided.

130. The ladders are to be constructed as indicated by details on drawing No. P. H. 370, being 16 inches wide, having  $\frac{3}{4}$ -inch-diameter rungs and 2 by  $\frac{1}{2}$  inch bar-iron sides. The ladders are to be securely fastened in place.

131. Rungs,  $\frac{3}{4}$  inch diameter and 3 feet long, bent and turned up 2 inches, are to be built into outside wall of stack, where indicated. They are to be built into wall 4 inches, six courses of brick apart, forming a ladder 12 inches wide.

#### *T-bar Supports.*

132. One-and-one-half-inch T-bar supports, placed 24 inches on centers, are to be provided for supporting the plastered ceilings in the rooms and hall on the north side of engine room. Each bar to be secured to the partition cap at one end and built into the outside brick wall at the other end.

#### *Shop Drawings.*

133. Contractor must submit to the mechanical engineer for approval, detailed shop drawings, in duplicate, of platform and stairs at entrance to boiler room, of spiral staircase with stairs to pump and heater room, of the roof truss, and of smokestack. These drawings must be submitted as soon as possible after the award of contract, and no work covered by the drawings required shall be started until the drawings are approved.

## ROOFING AND GUTTERS.

### *Tin Roof.*

134. The roof of power house, together with the roof of the ventilators, is to be covered with best quality 14 by 20 inch M. E. IX tin, or equal, secured not over 12 inches apart, laid with soldered joints and standing seams, and properly painted on underside before laying. One layer of Neponset black waterproof paper or equal is to be placed below tin.

135. At side walls, ventilators, and at all points where pipes extend through roof, suitable lead flashing to make absolute watertight joints is to be provided.

### *Alternate Proposal for Roofing.*

136. Bidders are requested to submit an alternate proposal to cover the construction of the roof, consisting of one layer of Neponset black waterproof paper, covered with one layer of two-ply Paroid roofing, or of J. M. standard brand asbestos roofing, laid with cemented lap joints, and secured with galvanized-iron nails, not over 2 inches on centers, provided with sheet-steel waterproof plates. Flashing must be provided as required for tin roof.

### *Gutters.*

137. Gutters are to be provided, as indicated, along the entire length of the north and south sides of the building. These gutters are to be constructed of M. E. IX tin, or equal, formed as indicated by detail on drawing No. P. H. 369, the gutters being graded from the central points.

138. The gutter lining is to be riveted to the galvanized-iron cornice, as indicated, the outer edge being fastened to roof by galvanized-iron straps, approximately 3 feet apart.

### *Cornice.*

139. Cornice to be constructed of galvanized iron, approximately as indicated by detail on drawing No. P. H. 369, being securely fastened at bottom to brickwork and secured at top as indicated.

140. Galvanized iron to be of best quality, heavily galvanized, and not less than 24 B. W. gauge in thickness.



## PLASTERING.

### *General.*

141. The walls and ceilings of the rooms and hall on north side of the engine room are to be plastered, the plaster on ceiling and stud partitions being secured to metal lath, the plaster on brick walls being placed on the brickwork.

142. Plastering at windows and at north door to turn into openings, finishing against frames.

### *Lath.*

143. Lathing shall be of metal as may be approved, being not less than No. 26 gauge and coated to prevent rusting. The lath at partitions to be secured to the studs, and for ceiling to be fastened to the 1½-inch T bars, hereinbefore specified.

### *Plastering.*

144. Three coats of hard plaster to be provided on all walls and ceiling where indicated, except back of baseboards and wainscoting, where the finished coat may be omitted. The finished coat shall be a hard, white coat, troweled smooth.

145. All plastering, including finished coat, to be done with a standard brand of hard plaster, which must be mixed by the manufacturer, either dry or as a mortar, ready for application after the addition of the necessary amount of water, and under no circumstances will the contractor be permitted to add any solid matter. The plaster must be of such a nature that under any condition the finished coat may be applied within 12 days from the laying on of the first coat, without detriment to any portion of the work.

146. The hard plaster to be used must be approved for the work, and must be applied in accordance with the specification of the company supplying same.

147. Walls must be swept clean and the masonry wetted immediately before being plastered.

148. External angles shall have approved metal corner beads.

149. All angles must be true, and the plastering when complete shall be clean, free from blisters, discoloration, cracks, or other defects.



## CARPENTER WORK.

### *Roof Construction.*

150. The roof is to be supported on 8 by 10 inch purlins, securely bolted at each roof truss with two  $\frac{3}{4}$ -inch-diameter bolts, as shown by the details. The purlins are to be notched to receive the 2 by 6 inch rafters which are to be placed 24 inches on centers, and securely spiked to the purlins and to the 6 by 12 inch wall plates. The wall plates are to be firmly anchored to brickwork.

151. The rafters are to be covered with  $\frac{7}{8}$ -inch matched boards, not over 6 inches wide, running along the roof, securely nailed to rafters.

152. Suitable foundation boards for gutters and supports for cornice are to be provided as required by the details.

### *Ventilators.*

153. Two ventilators, constructed as indicated on the drawings, having pivoted sashes on each side, are to be located at ridge of roof as shown.

154. The ventilators are to be securely supported from roof rafters, the uprights being 4 by 4 inch studs spiked in place. Ends and roof of ventilators are to be covered with  $\frac{7}{8}$ -inch-thick matched boards, not over 6 inches wide, the roof sheathing being supported on 2 by 4 inch rafters.

155. Sashes to be 1 $\frac{3}{8}$  inches thick, strongly framed, each provided with six lights of glass, to be pivoted at centers and arranged for operation by sash-operating device.

156. A sash-operating mechanism, as may be approved by the mechanical engineer, consisting of rods, levers, gears, etc., for operating the six ventilating sashes on the sides of the two ventilators are to be furnished by this contractor, there being four sets of the appliances. This apparatus must be strong and substantial in every part and provided with operating handles or chains, located where directed so that the sashes may be operated from the floors.

### *Stud Partitions.*

157. The partitions forming rooms and hall on north side of engine room are to be stud partitions, consisting of 4 by 4 inch studs, placed 16 inches on centers. The studs are to be supported on 2 by 4 inch floor plates, which are to be secured to floor by heavy expansion bolts and provided at top with a 2 by 4 inch partition cap. The studs are to be securely spiked to the floor plate and partition cap



and to be provided with two 2 by 4 inch cross braces, securely fastened in place between studs.

158. The room sides of partitions are to be plastered as hereinbefore specified, but the engine-room side of partition is to be covered with best grade North Carolina pine sheathing,  $\frac{7}{8}$  inch thick, 4 inches wide, tongued and grooved, dressed on one side with V-cut joints. Sheathing to be placed vertically and nailed at each bearing.

159. At top of partition on engine-room side the partition is to be finished with a suitable molding, 6 inches wide, the molding to match door trims.

#### *Baseboards.*

160. Baseboards are to be provided for both sides of all stud partitions, and for other walls of the finished rooms and hall, where wainscoting is not required. Baseboards are to be  $\frac{7}{8}$  inch thick, of North Carolina pine, 8 inches high, including a  $1\frac{1}{2}$ -inch base molding. Shoe moldings to be provided at floor.

#### *Floors.*

161. The hall, office, and storerooms are to have wood floors of selected edge-grain North Carolina pine,  $\frac{7}{8}$  inch thick, tongued and grooved, planed one side, kiln-dried, not exceeding  $2\frac{1}{2}$ -inch face width, all matched and properly laid, well driven up and blind-nailed. Beveled nailing strips, 2 by 3 inches, placed 16 inches on centers, are to be placed in the cinder-concrete fill and leveled up to the required elevation.

#### *Windows.*

162. All exterior windows are to be of approved make and design revolving windows, pivoted top and bottom, as shown by details on drawing No. P. H. 368. Frames to be of  $1\frac{1}{2}$ -inch stock, securely anchored to brickwork and provided with moldings and beads, as indicated, to make same absolutely water-tight. Frames to be set on 3 by 10 inch sills, having rounded inner edges and provided with wash. Sashes to be of 2-inch stock, framed in an approved and substantial manner.

163. The window in partition wall between engine and boiler room is to be fitted into a 6 by 8 foot arched opening, the window being a double sliding-sash window. Box frames are to be provided and pockets in pulley stiles are to be as long as possible, and be secured in place with countersunk heavy brass screws. Parting strips to be tightly fitted into grooves but not fastened. Frames to be provided with approved ball-bearing pulleys. Sash to be  $1\frac{3}{4}$  inches thick, carefully fitted and hung with first-quality braided cotton cords, and provided with suitable cast-iron weights and finished brass lifts and fastenings.



164. All frames are to be tightly calked from both sides with mortar before permanently securing the beads in place.

*Doors.*

165. Details of the exterior doors are shown on drawing No. P. H. 369. The doors are to be paneled as indicated, having glass upper panels, and the north door is to be provided with a transom. Frames are to be constructed in an approved and substantial manner.

166. All interior doors are to be  $1\frac{3}{4}$  inches thick, constructed with horizontal panels and provided with transoms of same thickness. Doors to be provided with  $\frac{7}{8}$ -inch-thick by 5-inch-wide trims at top and sides, molded, with molded plinth, and corner blocks.

167. In the 9-inch walls, closing ends of tunnels at the laboratory buildings,  $1\frac{3}{4}$ -inch doors with heavy frames securely anchored and calked with mortar into the brickwork are to be placed, the doors fitting the recesses of frames as tightly as possible.

168. Thresholds to be provided at all doors, securely fastened in place.

*Materials.*

169. All doors and windows with their frames are to be of selected white pine. All other woodwork, unless otherwise specified, to be of best quality selected long-leaf yellow pine.

170. No undressed lumber, except for stud partitions, is to be used, all wood being dressed all over. All wood must be thoroughly seasoned.



## PAINTING AND GLAZING.

### *Woodwork.*

171. All exterior woodwork and woodwork of roof construction shall be given three coats of white lead and linseed oil of tints as may be approved.

172. All interior woodwork, except floors and material of roof construction, to be properly filled and finished with three coats of best quality interior-finish varnish, as may be approved, carefully applied and cleaned after each coat.

173. All doors and window frames or other finished woodwork which is in contact with masonry or plaster shall have a heavy coat of yellow ocher on back.

174. All putty stopping to be neatly done after priming and before the next coat is put on, in an approved manner, using only best quality putty.

175. The wood floors are to be filled with one coat of boiled linseed oil with enough stain to give a uniform color as directed, and finished with two coats of Liquid Granite, or material of equal quality.

### *Metal Work.*

176. The plates of stack are to be painted outside and inside before leaving the shop, and the entire stack is to be given two additional coats, inside and outside, immediately after erection, an approved quality of mineral paint being used.

177. Galvanized-iron work to be washed with vinegar and given one coat of metallic paint and two coats of lead and oil, colored as may be approved.

178. Tin roof and gutter lining to be finished with two coats of Prince's Metallic Paint, or its equal.

179. All other metal work, unless otherwise specified, furnished under this contract, including piping, to be given two coats of best quality red lead and pure linseed oil.

### *Brickwork.*

180. All exposed exterior brick walls and the exposed interior walls of engine room are to be painted with three coats of best quality white lead and oil paint having colorings as may be approved.

*Materials.*

181. All paints, varnishes, and oils shall be the best quality, to be delivered in unbroken packages bearing the brand and maker's name, and all paints must be approved.

*Glass.*

182. All glass for windows, doors, transoms, and ventilator sashes to be of best quality double-thick American glass, free from imperfections. Glass in toilet-room window to be of good quality opaque glass.

*Setting Glass.*

183. All glass to be set without springing, and be bedded in putty and be secured in place with glazier's points and putty.

## PLUMBING.

### *General.*

184. This contractor is to install complete the plumbing for the toilet room, roof drainage, etc., including manhole and drainage connection to inlet in Laboratory B.

### *Soil and Waste Piping, etc.*

185. Down-spout connections are to be made to the gutters at the four corners of the building, provided with 6-pound sheet-lead goose necks, having flanged connections to galvanized-iron pipe of down spouts. Goose necks are to be enlarged to twice the pipe area and to be provided with galvanized-iron wire, basket gratings, soldered in place. The work around connections to goose necks to be made water-tight.

186. All piping of size given to be run as indicated on the plan, at grades noted, discharging into the manhole at northeast corner of building.

187. Where indicated on the plans as clean-outs, tee fittings are to be provided with full-size brass screw-jointed clean-out plugs. Clean-outs on risers to be placed near floor.

188. Brass screw-plug outlets are to be provided on piping where indicated.

189. From the manhole a 6-inch-diameter connection is to be made, as shown, to an inlet in place on main in Laboratory B.

190. The toilet-room piping is to be run close to ceiling of pump and heater room, vent piping to be installed as indicated, and the vertical soil pipe is to be extended through roof as a vent pipe, terminating approximately 3 feet above roof line.

### *Water Piping.*

191. Hot and cold water connections are to be made to the fixtures and to the location of fire-hose connection as required, the connections being run from outlets in pump and heater room, where indicated. Piping to be run below toilet-room floor in an approved manner.

192. Connections to fixtures to be of the following sizes: For each water-closet flush valve, 1 $\frac{1}{4}$ -inch; for urinal flush valve,  $\frac{3}{4}$ -inch; for lavatories,  $\frac{3}{4}$ -inch, with  $\frac{1}{2}$ -inch connection to each basin for both hot and cold water; for slop sink,  $\frac{3}{4}$ -inch, for both hot and cold water; for engineer's sink, 1-inch cold water,  $\frac{3}{4}$ -inch hot water; and for shower-bath fixture  $\frac{1}{2}$ -inch for both hot and cold water.

193. The hot-water piping below toilet-room floor to be covered with 1-inch-thick asbestos fire-felt coverings, or equal, and the cold-water piping to be covered with an approved felt covering,  $\frac{5}{8}$  inch thick, lined with tar paper. Coverings to be provided with a heavy canvas jacket and secured by solid brass bands and painted with two coats asbestos paint. The pipes to be given one coat of lead and oil paint before being covered.

#### *Hangers.*

194. All horizontal and vertical pipes are to be securely supported in place by heavy-pattern hangers of approved make. No chain or wire hangers will be allowed.

#### *Testing Piping.*

195. All soil, waste, and drain piping, after entirely installed, is to be tested by filling same with water to the top of down spouts, all connections being properly plugged. The drain from manhole is to be tested by filling same with water to the top of a temporary length of pipe connected at manhole. Pipes are to remain full of water for six hours for inspection, after which, if proved tight, the water is to be drawn off and fixtures connected.

196. The water piping is to be proved tight to a hydrostatic pressure of 100 pounds per square inch.

#### *Pipe and Fittings.*

197. All pipes below grade, including drain from manhole, to be of extra-heavy cast-iron hub and spigot pipe, of the following average weights per linear foot:

- 3-inch-diameter pipe to weigh  $9\frac{1}{2}$  pounds.
- 4-inch-diameter pipe to weigh 13 pounds.
- 5-inch-diameter pipe to weigh 17 pounds.
- 6-inch-diameter pipe to weigh 20 pounds.

198. All fittings for cast-iron pipe to be of corresponding quality and weight.

199. Cast-iron pipe must be straight, cylindrical in bore, of even thickness, spigot end provided with bead, and hub end must be perfect so that satisfactory joints of even thickness may be made.

200. All connections and turns where possible must be made with Y fittings and  $\frac{1}{8}$  or  $\frac{1}{16}$  bends.

201. All water, soil, waste, vent, and down pipes, except where otherwise specified, to be of best quality galvanized wrought-iron or mild-steel screw-jointed pipe of standard weight and thickness.

202. Fittings for wrought-iron soil and waste piping must be heavy pattern, galvanized, cast iron, recessed and beaded screw, drainage fittings; long-turn bends must be used for changes in



direction of runs, and regular-pattern Y branches, or long-turn T pattern Y branches, must be used for all branch connections. The fittings for wrought iron or steel water and vent piping must be heavy-pattern galvanized cast or malleable screw-jointed beaded fittings.

203. All water piping exposed in toilet room to be finished brass, nickel-plated, annealed, seamless-drawn tubing of standard wrought-iron pipe gauge in thickness. Fittings to be of finished brass, malleable-iron pattern, heavily nickel-plated.

204. All joints of cast-iron pipe and of wrought-iron pipe to cast-iron pipe to be made with best quality of oakum and best quality and brand of soft pig lead, made in an approved manner. Connections between wrought-iron pipes to be screw joints, and brass union connections are to be provided on brass piping.

#### *Cesspools.*

205. Three cast-iron deep bell-trap cesspools, with hinged covers and 3-inch outlets, are to be provided and set flush with boiler-room floor, where indicated. Connections to be made to drainage system as shown and as herein specified.

206. A cast-brass cesspool with 2-inch outlet, having finished-brass nickel-plated rim and 5-inch-diameter cover plate, is to be provided and set in shower-bath inclosure, where indicated in toilet room. A P trap with clean-out is to be placed directly below the connection from cesspool.

#### *Fire Hose and Rack.*

207. Where indicated in the engine room, an approved make, nickel-plated, swinging, fire-hose rack, containing 75 feet of 1½-inch-diameter, best quality, unlined, linen hose, arranged to hang in vertical loops, is to be installed. The outlet is to be provided with a 1½-inch-diameter, heavy-pattern, brass, nickel-plated angle valve, with hose nipple, the rack being supported by a clamp around the hose nipple. The hose must have coupling and nozzle complete of heavy pattern, finished brass, nickel-plated.

#### *Valves.*

208. The two water-closets and the urinal are to be fitted with an approved brass nickel-plated flushing valve, with heavy operating lever and handle, permanently fastened to valve, or push-button operating device. Each valve must have a regulating device to adjust the amount of flush water and give proper refill to the fixture. Inlet connection of valves to be 1¼-inch for water-closet and ¾-inch for urinal.



209. The water-supply connection to each fixture and to each flush valve to be controlled by an approved, double-seat, brass, nickel-plated gate valve, having union connection.

*Fixtures.*

210. The fixtures to be provided in connection with this work to consist of two water-closets, one urinal, one two-basin lavatory, one shower-bath fixture, one slop sink, and one engineer's sink, complete with all trimmings. All fixtures to be installed where indicated on the plans.

211. Water-closets to be of siphon-jet pattern, large-size, vitreous earthenware closets, weighing approximately 70 pounds each, having strong substantial pedestal base and trap molded in one piece. Closets to have plain white finish, to be of standard manufacture, acceptable to the mechanical engineer in every detail.

212. Seats not less than  $1\frac{1}{2}$ -inch finished thickness, of well-seasoned quarter-sawed oak, strongly framed, and securely fastened to closets with substantial, finished-brass, nickel-plated hinges, are to be provided. No covers are to be furnished for closets.

213. Closet connections are to be made with heavy-pattern, screw-jointed, brass floor flanges and 4-inch-diameter wrought-iron nipples of proper length, screwed to wrought-iron soil-pipe fittings. Closets to be bolted to the brass floor flanges with brass bolts, exposed heads of nuts of bolts to be nickel-plated. Joints between closets and floor flanges to be made absolutely water and gas tight, with special molded gaskets. An approved brass nickel-plated fitting, with rubber buffer, is to be secured to wainscot above closet for seat to strike against.

214. The urinal must be of approved make, of plain white finish vitreous earthenware, as specified for water-closets, of large size, lipped pattern, having flushing rim and 2-inch-diameter connection. Urinal bowl to be of siphon-jet pattern, designed to hold a body of water in the bowl. All exposed metal connections to be finished brass, nickel-plated.

215. The lavatory to consist of two sections of best quality, white enameled-iron lavatories of approved make, having slab, bowl, back, apron, and overflow in one piece. The slabs to be approximately 18 by 24 inches, having 12 by 15 inch bowls. Lavatories to be placed together with union strips, and each lavatory to be furnished with two heavy-pattern brackets, a  $1\frac{1}{2}$ -inch nonsiphoning trap, a hot and cold water Fuller pattern faucet with connections, and waste connection with rubber plug, chain, and chain stay. One 2-inch nonsiphoning trap may be installed in lieu of the two  $1\frac{1}{2}$ -inch traps. All trimmings, including brackets, to be finished brass, nickel-plated.

216. The shower-bath fixture must have a combination safety mixing valve for the hot and cold water supply, and a shower head with adjustable movable joint connection and removable perforated face plate, not less than 5 inches in diameter. Fixture must be fitted with the necessary valves for controlling the hot and cold water supply to the fixture below the mixing valve, and to be securely fastened in place to wainscot with brass supports. The fixture and all fittings must be of approved type, constructed of finished brass, heavily nickel-plated.

217. The sink in boiler room to be of galvanized cast iron, 36 by 18 by 6 inches deep, having roll rim and iron back, securely bolted to wall, and provided with air chambers for hot and cold water connections. Sink to be supported on two galvanized wrought-iron brackets, securely fastened to wall with expansion bolts. Fittings for sink to include a 2-inch nonsiphoning trap with waste connection,  $\frac{3}{4}$ -inch-diameter hot-water and 1-inch-diameter cold-water Fuller pattern bibbs, all finished brass of approved types. Cold-water faucet must have connection for 1-inch-diameter hose.

218. The slop sink is to be a 16 by 20 inch enameled-iron roll-rim sink of best quality, having a 15-inch-high enamel back with galvanized-iron air chambers for hot and cold water connections. Sink to be set on a heavy-pattern enameled-iron nonsiphoning trap standard, with clean-out and without vent connection, and provided with  $\frac{3}{4}$ -inch hot and cold water approved Fuller pattern bibbs. The cold-water bibb to have hose connection. Sink to be painted on outside with three coats of best quality white enamel paint.

*Closet Inclosures, Wainscot, etc.*

219. The partitions forming inclosures for water-closets and bath fixture and the stall for urinal to be of Alberene stone,  $1\frac{1}{4}$  inches thick, constructed, supported, and braced, as shown or noted on the drawings.

220. The partitions for bath-fixture inclosure to extend to floor, and all other partitions to be set with bottom edges 12 inches above floor line.

221. Framing for supporting and bracing partitions must be brass tubing, not less than No. 16 B. W. gauge, and fittings for same must be heavy-pattern cast brass. Partition slabs, etc., are to be secured to wainscot with heavy-pattern cast-brass angle plates. All metal parts to be finished brass, nickel-plated.

222. Water-closet inclosures and inclosure for bath fixture to have solid paneled swinging doors, constructed of well-seasoned, quarter-sawed, clear, selected, white oak. Each door to be hung with a pair of approved heavy-pattern hinges with adjustable springs, arranged to hold the doors open inside of the inclosures, the hinges being

secured to the inclosure partitions and to doors with socket fastenings and through bolts. An approved doorstop with rubber buffer must be bolted in place in each inclosure, and an approved double coat hook and a paper holder are also to be provided in each inclosure, the paper holder being omitted in bath-fixture inclosure. Each door must be fitted with a heavy-pattern bolt and each door opening provided with a stop with rubber-faced buffer. All hardware for the inclosure doors, etc., must be heavy-pattern, finished brass, nickel-plated.

223. A floor slab, 2 inches thick, of dimensions of shower-bath inclosure, of Alberene stone, countersunk to drain to cesspool, is to be provided. The slab is to fit into the corner of toilet room, extending under the wainscoting and the inclosure partitions.

224. The toilet room and the adjacent room designated on plans as distilled-water apparatus room are to be provided with a 1-inch-thick wainscot of Alberene stone, 6 feet high, having finished edges to fit neatly against floor and rounded upper edges; the edges at windows above sills are also to be rounded.

225. All wainscoting, including partitions, floor slabs, etc., are to be of hard material, ground to smooth even surfaces, having square edges and sharp corners, unless otherwise specified, and all exposed surfaces are to be rubbed and polished.

226. The floor slab and wainscot to be bedded in cement mortar and slabs against walls must be securely held in place with concealed holdfasts, etc. All slabs must be set with close, even joints.

227. Bidders are requested to submit an alternate proposal for using best quality finished slate in lieu of the Alberene stone specified.

#### *Manhole.*

228. This contractor is to construct a manhole at the northeast corner of the building, having brick walls, concrete base, and cast-iron frame and cover.

229. Manhole to be constructed as shown by details on drawing No. P. H. 370, having an inside diameter of 36 inches, with 9-inch-thick walls and a 12-inch-thick base, which is to be guttered as indicated.

230. The 6-inch and 4-inch inlet connections are to terminate at the inside of wall and the 6-inch discharge is to be run from manhole connecting with inlet in Laboratory B, as shown on the plans.

## HARDWARE.

### *General.*

231. All hardware necessary to complete the work for windows, doors, transoms, etc., to be furnished, whether specifically mentioned or not. All hardware, unless otherwise specified, to have old-copper finish.

### *Windows.*

232. The exterior windows are to be provided with heavy bearing plates, with metal sockets on frames and sashes at location of pivots, securely fastened with brass countersunk screws and furnished with heavy pivot pins. The plates with pins to be so arranged that windows may be easily removed.

233. A suitable appliance must also be installed at each window for securing same in any desired position from full open to closed. The attachment must be neat in design and substantially constructed of heavy materials and securely fastened to window frame and sash.

234. Windows to also be provided with a heavy-pattern snap catch.

### *Doors.*

235. All doors are to be provided with heavy-pattern butts, those for outside doors being 5 by 5 inches and for inside doors  $4\frac{1}{2}$  by  $4\frac{1}{2}$  inches, mortise locks having large-size plates,  $2\frac{1}{2}$ -inch knobs, and escutcheon plates.

### *Transoms.*

236. Transoms above doors to be hinged at the bottom and provided with  $\frac{3}{8}$ -inch transom lifts of approved type and of sufficient length to come within 5 feet of floors.

### *Samples.*

237. A sample of each article of hardware is to be furnished for approval.



**PROPOSAL FOR POWER HOUSE FOR THE UNITED STATES DEPARTMENT OF AGRICULTURE, WASHINGTON, D. C.**

N. B.—After these proposal sheets have been filled out by the bidder they must be detached from the specification and forwarded under separate cover, with postage prepaid by the sender.

Bidders are notified that lump-sum proposals for the entire work must be submitted and that proposals for only portions of the work will not receive consideration. The various amounts, etc., on proposal sheets are requested to be typewritten.

To the SECRETARY OF AGRICULTURE,  
*Washington, D. C.*

SIR:

238. .... hereby propose to furnish all the labor and materials to construct, complete in every detail, the power house for the United States Department of Agriculture, Washington, D. C., all in accordance with the drawings and specifications, for the sum of

.....  
..... (\$.....)

239. Amount to be added to or deducted from the total proposal for the alternate roof construction, as required by paragraph No. 136 of the specification:

Add ..... (\$.....)

Deduct ..... (\$.....)

Kind of roof upon which proposal is based, .....

.....  
.....





(II)

240. Amount to be added to or deducted from the total proposal for the use of slate in lieu of Alberene stone, as required by paragraph No. 227 of the specification:

Add ..... (\$.....)

Deduct ..... (\$.....)

Kind of slate upon which proposal is based, .....

241. Amount included in total bid for the tin roof specified, .....

..... (\$.....)

242. Amount included in total proposal for all plumbing, .....

..... (\$.....)

243. Amount included in total proposal for concrete tunnels, .....

..... (\$.....)

(Signature) .....

(Address) .....

NAMES OF INDIVIDUAL MEMBERS OF FIRM.

NAME OF CORPORATION.

NAME OF SECRETARY.

NAME OF PRESIDENT.

UNDER WHAT LAW CORPORATION  
IS ORGANIZED.





